THE USE OF MICROPORE FILTERS IN CONTINUOUS EPIDURAL ANAESTHESIA

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CONTINUOUS EPIDURAL ANAESTHESIA has been used in the Toronto General Hospital for a variety of indications since 1947, but gained popularity as a method of total pain relief in routine labour only in 1969. Since that time 1200 patients have had this method of anaesthesia for the first stage of labour, with tremendous patient acceptance. The advantages of the technique are complete relief of pain in the first stage of labour; freedom from the necessity to give narcotic drugs to the mother; an unbelievably quiet labour area and quiet easily managed movement of the mother from the labour area to the operating room for the second stage, without the panic and screaming which was so often experienced prior to the introduction of this useful technique into our management of the patient.

We suspect that with time this technique will be used more frequently in other centres. The purpose of this short paper is to bring to the attention of those who intend to use this form of anaesthesia, a new piece of equipment which we have used for the past six months and now believe should be used by anyone employing this technique.

Millipore Ltd have produced a Swinnex Micropore filter which can be attached to the distal end of the epidural catheter and which will prevent contamination of an anaesthetic solution being injected into the epidural space. Prior to the introduction of the filter, it was our practice to place a 2-way stop-cock between the syringe and the catheter. (Figure 1) However, we found that after cleaning and sterilization some of the stop-cocks, when taken apart and knocked on a sheet of white paper, produced a large quantity of fine debris and it was obvious that the stop-cocks could not really be cleaned properly. This was particularly true if congealed blood had been permitted to remain in them for some time prior to cleaning. An example of this is shown in Figure 2. We must assume that this debris could enter the epidural space and act as a contaminant. Fortunately we have had no ill effects, but being now aware of the apparent impossibility of cleaning these stop-cocks adequately, we feel very strongly the micro-pore filter should be used in each case. Figure 3 shows how and where the filter is attached. These filters are used by the Bacteriology Laboratories in our Hospital and were tested for us before we introduced them into our practice.

Continuous spinal anaesthesia is used in the United States a great deal more than in Canada. As the catheter in that case is lying in the subarachnoid space, it would seem equally or more imperative that such a filter system be used.

The filter holders are reusable and it takes just a few minutes to reinsert a new filter paper and gasket prior to gas autoclaving (Figure 4). We suggest the use

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FIGURE 1. The method using a stopcock prior to introduction of the Millipore Filter into the practice of epidural anaesthesia.

FIGURE 2. Shows debris from a stopcock after it had been thoroughly cleaned. This stopcock was hand washed in detergent, rinsed first with tap water and then with distilled water, and blown through with compressed air prior to steam autoclaving. It also demonstrates that these stopcocks can never be cleaned adequately for spinal and epidural work.

FIGURE 3. Shows the use of the micropore filter in its relation to catheter and syringe.

FIGURE 4. Filter holder dismantled showing filter paper and gasket which are replaced after use.

of the Swinnex 25 – with 0.22 micropore size millipore filter in place. The reusable filter holders cost approximately 75 cents each and the filter paper, which comes in packages of 100, costs 14 cents each. Changing the filter and gasket is done by the obstetrical nurses. The gas autoclaving adds an infinitesimal amount to the total cost.

Full details can be obtained from Millipore Ltd, 4980 Buchan Street, Montreal, Quebec.